

WHAT IS CLAIMED IS:

1. A composition for the oxidation dyeing of keratin fibers, comprising, in a medium suitable for dyeing,
 - a) at least one oxidation dye;
 - b) at least one fatty alcohol;
 - c) at least one associative polymer; and
 - d) at least one compound chosen from fatty acid esters and metal oxides.
2. The composition according to claim 1, wherein the keratin fibers are human keratin fibers.
3. The composition according to claim 2, wherein the human keratin fibers are hair.
4. The composition according to claim 1, wherein the at least one fatty acid ester is chosen from monoesters, diesters, and triesters obtained from the reaction of at least one acid chosen from linear and branched, saturated and unsaturated monoacids and linear and branched, saturated and unsaturated diacids having 8 to 30 carbon atoms with at least one alcohol chosen from saturated and unsaturated, linear, branched and cyclic monoalcohols and saturated and unsaturated, linear, branched and cyclic polyols having 2 to 100 carbon atoms and 1 to 30 hydroxyl groups.
5. The composition according to claim 4, wherein the at least one acid is chosen from stearic acid, palmitic acid, lauric acid, oleic acid, and myristic acid.
6. The composition according to claim 4, wherein the at least one alcohol is chosen from ethanol, isopropanol, isoctanol, dodecanol, stearyl alcohol, ethylene glycol, propylene glycol, glycerol, polyethylene glycols, polypropylene glycols, glucose, methyl glucose, sorbitol, sorbitol anhydride, and pentaerythritol.

7. The composition according to claim 4, wherein the monoalcohols or polyols are oxyalkylenated.

8. The composition according to claim 4, wherein the monoalcohols or polyols are oxyethylenated.

9. The composition according to claim 1, wherein the fatty acid ester is chosen from isopropyl myristate, stearyl stearate, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol monostearate, polyethylene glycol distearate, sorbitan monopalmitate, glyceryl isostearate, propylene glycol dipelargonate, 2-ethylhexyl palmitate, sorbitan tristearate, di(2-ethylhexyl) sebacate, and glyceryl trihydroxystearate.

10. The composition according to claim 1, wherein the metal oxide is chosen from aluminium oxides, zinc oxides, magnesium oxides, and titanium oxides.

11. The composition according to claim 10, wherein the metal oxide is chosen from titanium oxides and mica-titanium oxide hybrid compounds.

12. The composition according to claim 11, wherein the titanium oxide is coated.

13. The composition according to claim 11, wherein the titanium oxide is uncoated.

14. The composition according to claim 1, wherein the at least one compound chosen from fatty acid esters and metal oxides is present in the composition in an amount ranging from 0.2% to 10% by weight, relative to the total weight of the composition.

15. The composition according to claim 14, wherein the at least one compound chosen from fatty acid esters and metal oxides is present in the composition in an amount ranging from 0.5% to 5% by weight, relative to the total weight of the composition.

16. The composition according to claim 1, wherein the at least one associative polymer is chosen from non-ionic, anionic, cationic, and amphoteric associative polymers.

17. The composition according to claim 16, wherein the at least one associative polymer is chosen from fatty-chain anionic associative polymers comprising at least one hydrophilic unit and at least one fatty-chain allyl ether unit.

18. The composition according to claim 17, wherein the at least one hydrophilic unit is chosen from ethylenic unsaturated anionic monomers.

19. The composition according to claim 18, wherein the at least one hydrophilic unit is a vinylcarboxylic acid.

20. The composition according to claim 17, wherein the at least one fatty-chain allyl ether unit is a monomer of formula (I) below:



wherein

R' is chosen from a hydrogen atom and a methyl group;

B is an ethyleneoxy radical;

n is an integer ranging from 0 to 100; and

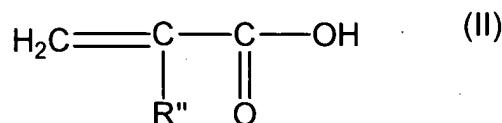
R is a hydrocarbon-based radical chosen from alkyl, arylalkyl, aryl, alkylaryl and cycloalkyl radicals, having from 8 to 30 carbon atoms.

21. The composition according to claim 20, wherein R has 10 to 24 carbon atoms.

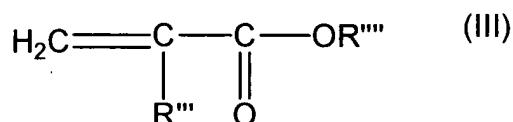
22. The composition according to claim 21, wherein R has 12 to 18 carbon atoms.

23. The composition according to claim 17, wherein the fatty-chain anionic associative polymer comprises at least one unsaturated olefinic carboxylic acid hydrophilic unit and at least one unsaturated carboxylic acid (C₁₀-C₃₀)alkyl ester hydrophobic unit.

24. The composition according to claim 23, wherein the unsaturated olefinic carboxylic acid hydrophilic unit corresponds to the monomer of formula (II) below:



in which R" is chosen from a hydrogen atom, a methyl group, and an ethyl group, and in which the unsaturated carboxylic acid (C₁₀-C₃₀)alkyl ester hydrophobic unit corresponds to the monomer of formula (III) below:



in which:

R'' is chosen from a hydrogen atom, a methyl group, and an ethyl group; and

R^{'''} is chosen from C₁₀-C₃₀ alkyl radicals.

25. The composition according to claim 24, wherein R''' is chosen from C₁₂-C₂₂ alkyl radicals.

26. The composition according to claim 17, wherein the fatty-chain anionic associative polymer is a maleic anhydride/C₃₀-C₃₈ α -olefin/alkyl maleate terpolymer.

27. The composition according to claim 17, wherein the fatty-chain anionic associative polymer is an acrylic terpolymer comprising:

- (a) 20% to 70% by weight of at least one carboxylic acid containing α,β -monoethylenic unsaturation,
- (b) 20% to 80% by weight of at least one non-surfactant monomer containing α,β -monoethylenic unsaturation and being other than (a),
- (c) 0.5% to 60% by weight of at least one non-ionic monourethane which is the product of reaction of at least one monohydric surfactant with at least one monoisocyanate containing monoethylenic unsaturation.

28. The composition according to claim 17, wherein the fatty-chain anionic associative polymer is chosen from copolymers comprising among their monomers at least one carboxylic acid containing α,β -monoethylenic unsaturation and at least one ester of carboxylic acids containing α,β -monoethylenic unsaturation and oxyalkylenated fatty alcohols.

29. The composition according to claim 17, wherein the at least one associative polymer is an anionic fatty-chain associative polymer, and is chosen from:

- (1) celluloses modified with groups comprising at least one fatty chain;
- (2) hydroxypropylguars modified with groups comprising at least one fatty chain;
- (3) polyurethane polyethers comprising in their chain at least one polyoxyethylenated hydrophilic block and at least one of hydrophobic blocks containing at least one sequence chosen from aliphatic sequences, cycloaliphatic sequences, and aromatic sequences;
- (4) copolymers of vinylpyrrolidone and of fatty-chain hydrophobic monomers;
- (5) copolymers of at least one of C₁-C₆ alkyl methacrylates and C₁-C₆ alkyl acrylates and of amphiphilic monomers comprising at least one fatty chain;

(6) copolymers of at least one of hydrophilic methacrylates and hydrophilic acrylates and of hydrophobic monomers comprising at least one fatty chain; and

(7) polymers with an aminoplast ether skeleton comprising at least one fatty chain.

30. The composition according to claim 29, wherein the polyurethane polyethers comprise at least two hydrocarbon-based lipophilic chains having from 8 to 30 carbon atoms, separated by a hydrophilic block, and wherein the hydrocarbon-based chains are chosen from pendent chains and chains at the end of the hydrophilic block.

31. The composition according to claim 29, wherein the polyurethane polyethers are in multiblock form.

32. The composition according to claim 31, wherein the polyurethane polyethers are in triblock form.

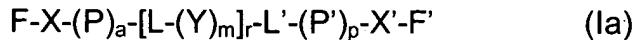
33. The composition according to claim 16, wherein the at least one associative polymer is a cationic polymer comprising at least one fatty chain and is chosen from:

- (i) quaternized celluloses modified with groups comprising at least one fatty chain;
- (ii) quaternized hydroxyethylcelluloses modified with groups comprising at least one fatty chain;
- (iii) cationic polyurethanes;
- (iv) cationic polyvinyllactams; and
- (v) acrylic terpolymer comprising acrylates, amino (meth)acrylates, and C₁₀-C₃₀ alkyl itaconates, polyoxyethylenated with 20 mol of ethylene oxide.

34. The composition according to claim 33, wherein the alkyl groups of the quaternized celluloses or hydroxyethylcelluloses have from 8 to 30 carbon atoms.

35. The composition according to claim 16, wherein the at least one associative polymer is a quaternized hydroxyethylcellulose modified with at least one of C₁₂ and C₁₈ alkyl groups.

36. The composition according to claim 16, wherein the at least one associative polymer is a cationic amphiphilic polyurethane of formula (Ia) below:



in which:

F and F', which may be identical or different, are chosen from hydrophobic groups and a hydrogen atom;

X and X', which may be identical or different, are chosen from groups comprising at least one amine function optionally bearing at least one of hydrophobic groups and groups L";

L, L' and L", which may be identical or different, are chosen from groups derived from an diisocyanate;

P and P', which may be identical or different, are chosen from groups comprising an amine function optionally bearing a hydrophobic group;

Y is chosen from hydrophilic groups;

r is an integer ranging from 1 to 100;

a, m and p, which may be identical or different, range from 0 to 1,000; wherein the polymer comprises at least one of protonated amine functions and quaternized amine functions and at least one hydrophobic group.

37. The composition according to claim 36, wherein r is an integer ranging from 1 to 50.

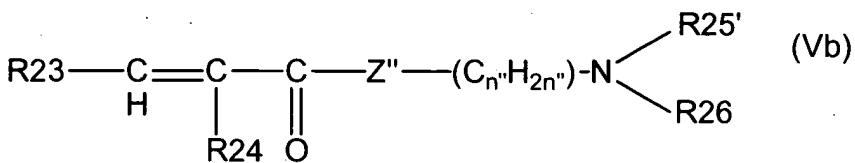
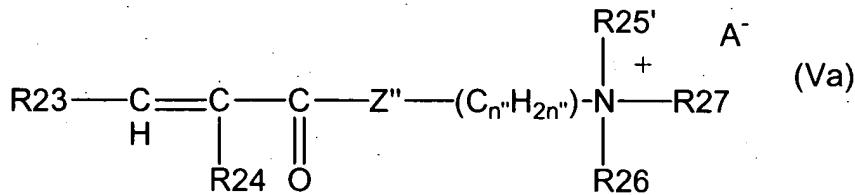
38. The composition according to claim 36, wherein r is an integer ranging from 1 to 25.

39. The composition according to claim 16, wherein the at least one associative polymer is an amphoteric polymer comprising at least one fatty chain having 8 to 30 carbon atoms and at least one non-cyclic cationic unit.

40. The composition according to claim 39, wherein the amphoteric polymer contains from 1 to 20 mol% of monomer comprising a fatty chain, relative to the total number of moles of monomers.

41. The composition according to claim 39, wherein the amphoteric polymers comprise:

1) at least one monomer chosen from formula (Va) and (Vb):



wherein

R23 and R24, which may be identical or different, are chosen from a hydrogen atom and a methyl radical;

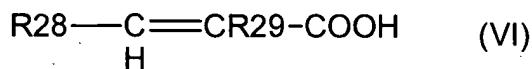
R25', R26 and R27, which may be identical or different, are chosen from linear and branched alkyl radicals having from 1 to 30 carbon atoms,

Z" is chosen from NH groups and an oxygen atom;

n" is an integer ranging from 2 to 5; and

A⁻ is an anion derived from an acid chosen from organic acids and mineral acids;

2) at least one monomer of formula (VI)

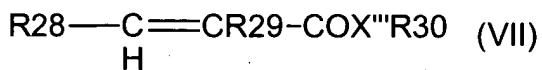


in which

R28 and R29, which may be identical or different, are chosen from a hydrogen atom and a methyl radical;

and

3) at least one monomer of formula (VII):



in which

R28 and R29, which may be identical or different, are chosen from a hydrogen atom and a methyl radical;

X" is chosen from an oxygen atom and a nitrogen atom; and

R30 is chosen from linear and branched alkyl radicals having from 1 to 30 carbon atoms; wherein

at least one of the monomers of formula (Va), (Vb) and (VII) comprises at least one fatty chain.

42. The composition according to claim 41, wherein the monomers of formulae (Va) and (Vb) are chosen from dimethylaminoethyl methacrylate, dimethylaminoethyl acrylate, diethylaminoethyl methacrylate, diethylaminoethyl acrylate, dimethylaminopropyl methacrylate, dimethylaminopropyl acrylate, dimethylaminopropylmethacrylamide, and dimethylaminopropylacrylamide, which are optionally quaternized.

43. The composition according to claim 41, wherein the monomer of formula (Va) is chosen from acrylamidopropyltrimethylammonium chloride and methacrylamidopropyltrimethylammonium chloride.

44. The composition according to claim 41, wherein the monomer of formula (VI) is chosen from acrylic acid, methacrylic acid, crotonic acid, and 2-methylcrotonic acid.

45. The composition according to claim 41, wherein the monomer of formula (VII) is chosen from C₁₂-C₂₂ alkyl acrylates and methacrylates.

46. The composition according to claim 45, wherein the monomer of formula (VII) is a C₁₆-C₁₈ alkyl acrylate.

47. The composition according to claim 1, wherein the at least one associative polymer is present in the composition in an amount ranging from 0.05% to 10% by weight, relative to the total weight of the composition.

48. The composition according to claim 47, wherein the at least one associative polymer is present in the composition in an amount ranging from 0.1% to 5% by weight, relative the total weight of the composition.

49. The composition according to claim 1, wherein the at least one associative polymer is a cationic fatty-chain polymer.

50. The composition according to claim 49, wherein the cationic fatty-chain polymer is chosen from cationic polyurethanes.

51. The composition according to claim 1, wherein the ratio by weight of the at least one compound chosen from fatty acid esters and metal oxides to the at least one associative polymer ranges from 0.1 to 10.

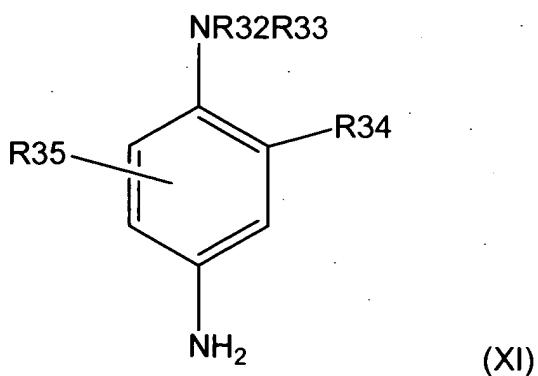
52. The composition according to claim 51, wherein the ratio by weight ranges from 0.5 to 5.

53. The composition according to claim 1, wherein the at least one oxidation dye is chosen from oxidation bases and couplers.

54. The composition according to claim 53, wherein the at least one oxidation dye is chosen from oxidation bases.

55. The composition according to claim 53, wherein the oxidation bases are chosen from ortho- and para-phenylenediamines, double bases, ortho- and para-aminophenols, heterocyclic bases, and the acid addition salts thereof.

56. The composition according to claim 55, wherein the para-phenylenediamines are chosen from the compounds of structure (XI) below:



in which:

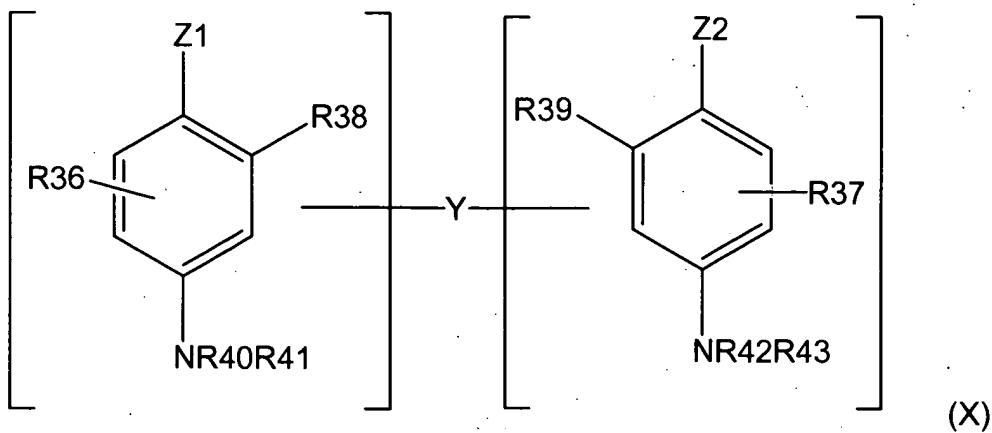
- R32 is chosen from a hydrogen atom, C₁-C₄ alkyl radicals, C₁-C₄ monohydroxyalkyl radicals, C₂-C₄ polyhydroxyalkyl radicals, (C₁-C₄)alkoxy(C₁-C₄)alkyl radicals, and C₁-C₄ alkyl radicals substituted with at least one of nitrogenous, phenyl, and 4'-aminophenyl groups;
- R33 is chosen from a hydrogen atom, C₁-C₄ alkyl radicals, C₁-C₄ monohydroxyalkyl radicals, C₂-C₄ polyhydroxyalkyl radicals, (C₁-C₄)alkoxy(C₁-C₄)alkyl radicals, and C₁-C₄ alkyl radicals substituted with at least one nitrogenous group; or

R32 and R33 may form, with the nitrogen atom to which they are attached, a 5- or 6-membered nitrogen heterocycle optionally substituted with at least one of alkyl, hydroxyl, and ureido groups;

- R34 is chosen from a hydrogen atom, halogen atoms, C₁-C₄ alkyl radicals, sulpho radicals, carboxyl radicals, C₁-C₄ monohydroxyalkyl radicals, C₁-C₄ hydroxyalkoxy radicals, acetylamino(C₁-C₄)alkoxy radicals, mesylamino(C₁-C₄)alkoxy radicals, and carbamoylamino(C₁-C₄)alkoxy radicals; and
- R35 is chosen from a hydrogen atom, halogen atoms, and C₁-C₄ alkyl radicals.

57. The composition according to claim 56, wherein R34 is a chlorine atom.

58. The composition according to claim 55, wherein the double bases are chosen from compounds of formula (X) below:



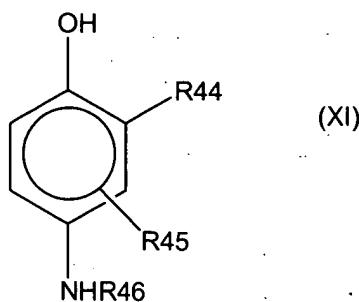
in which:

- Z1 and Z2, which may be identical or different, are chosen from hydroxyl radicals and - NH₂ radicals, optionally substituted with at least one of C₁-C₄ alkyl radicals and a linker arm Y;
- the linker arm Y is chosen from linear and branched alkylene chains having from 1 to 14 carbon atoms, optionally interrupted by and optionally terminated with at least one entity chosen from nitrogenous groups and heteroatoms, and optionally substituted with at least one of hydroxyl radicals and C₁-C₆ alkoxy radicals;
- R36 and R37 are chosen from a hydrogen atom, halogen atoms, C₁-C₄ alkyl radicals, C₁-C₄ monohydroxyalkyl radicals, C₂-C₄ polyhydroxyalkyl radicals, C₁-C₄ aminoalkyl radicals, and a linker arm Y;
- R38, R39, R40, R41, R42 and R43, which may be identical or different, are chosen from a hydrogen atom, a linker arm Y, and C₁-C₄ alkyl radicals;

it being understood that the compounds of formula (X) contain only one linker arm Y per molecule.

59. The composition of claim 58, wherein the at least one heteroatom is chosen from oxygen, sulfur, and nitrogen atoms.

60. The composition according to claim 55, wherein the para-aminophenols are chosen from the compounds of formula (XI) below:



in which:

R44 is chosen from a hydrogen atom, halogen atoms, C₁-C₄ alkyl radicals, C₁-C₄ monohydroxyalkyl radicals, (C₁-C₄)alkoxy(C₁-C₄)alkyl radicals, C₁-C₄ aminoalkyl radicals, and hydroxy(C₁-C₄)alkylamino(C₁-C₄)alkyl radicals;

R45 is chosen from a hydrogen atom, halogen atoms, C₁-C₄ alkyl radicals, C₁-C₄ monohydroxyalkyl radicals, C₂-C₄ polyhydroxyalkyl radicals, C₁-C₄ aminoalkyl radicals, C₁-C₄ cyanoalkyl radicals, and (C₁-C₄)alkoxy(C₁-C₄)alkyl radicals; and

R46 is chosen from a hydrogen atom and C₁-C₄ alkyl radicals.

61. The composition according to claim 60, wherein the halogen atom is fluorine.

62. The composition according to claim 55, wherein the heterocyclic bases are chosen from pyridine derivatives, pyrimidine derivatives, and pyrazole derivatives.

63. The composition according to claim 54, wherein the oxidation base is present in an amount ranging from 0.0005% to 12% by weight, relative to the total weight of the composition.

64. The composition according to claim 63, wherein the oxidation base is present in an amount ranging from 0.005% to 8% by weight, relative to the total weight of the composition.

65. The composition according to claim 53, wherein the couplers are chosen from meta-phenylenediamines, meta-aminophenols, meta-diphenols, heterocyclic couplers, and the acid addition salts thereof.

66. The composition according to claim 53, wherein the couplers are present in an amount ranging from 0.0001% to 10% by weight, relative to the total weight of the composition.

67. The composition according to claim 66, wherein the couplers are present in an amount ranging from 0.005% to 5% by weight, relative to the total weight of the composition.

68. The composition according to claim 55, wherein the acid addition salts of the oxidation bases are chosen from hydrochlorides, hydrobromides, sulphates, tartrates, lactates, and acetates.

69. The composition according to claim 1, further comprising at least one direct dye.

70. The composition according to claim 1, wherein the at least one fatty alcohol is chosen from oxyalkylenated and glycerolated fatty alcohols.

71. The composition according to claim 70, wherein the oxyalkylenated fatty alcohol is linear or branched, saturated or unsaturated and contains 10 to 20 carbon atoms and 2 to 40 ethylene oxide groups.

72. The composition according to claim 70, wherein the glycerolated fatty alcohol is linear or branched, saturated or unsaturated and contains 8 to 40 carbon atoms and 1 to 30 glycerol groups.

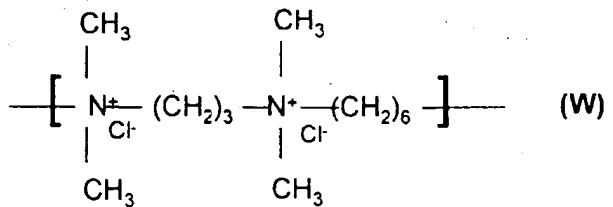
73. The composition according to claim 1, wherein the at least one fatty alcohol is present in an amount ranging from 0.05% to 30% by weight, relative to the total weight of the composition.

74. The composition according to claim 73, wherein the at least one fatty alcohol is present in an amount ranging from 0.5% to 20% by weight, relative to the total weight of the composition.

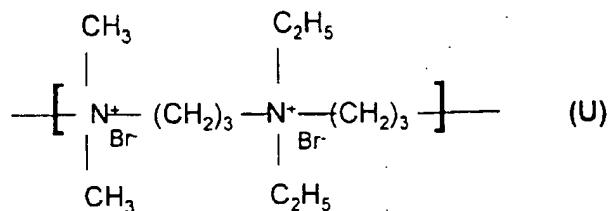
75. The composition according to claim 1, further comprising at least one substantive polymer chosen from amphoteric and cationic polymers different from the at least one associative polymer.

76. The composition according to claim 75, wherein the at least one substantive polymer is a homopolymer of dimethyldiallylammonium chloride.

77. The composition according to claim 75, wherein the at least one substantive polymer is a polymer of quaternary polyammonium comprising at least one repeating unit corresponding to formula (W) below:



78. The composition according to claim 75, wherein the at least one substantive polymer is a polymer of quaternary polyammonium comprising at least one repeating unit corresponding to formula (U) below:



79. The composition according to claim 75, wherein the at least one substantive polymer is chosen from cationic and amphoteric polymers, and is present in an amount ranging from 0.01% to 10% by weight, relative to the total weight of the composition.

80. The composition according to claim 79, wherein the at least one substantive polymer is chosen from cationic and amphoteric polymers, and is present in an amount ranging from 0.05% to 5% by weight, relative to the total weight of the composition.

81. The composition according to claim 80, wherein the at least one substantive polymer is chosen from cationic and amphoteric polymers, and is present in an amount ranging from 0.1% to 3% by weight, relative to the total weight of the composition.

82. The composition according to claim 1, further comprising at least one surfactant chosen from anionic, amphoteric, non-ionic, zwitterionic, and cationic surfactants.

83. The composition according to claim 82, wherein the at least one surfactant is non-ionic.

84. The composition according to claim 82, wherein the at least one surfactant is present in an amount ranging from 0.01% to 40% by weight, relative to the total weight of the composition.

85. The composition according to claim 84, wherein the at least one surfactant is present in an amount ranging from 0.5% to 30% by weight, relative to the total weight of the composition.

86. The composition according to claim 1, further comprising at least one supplementary thickener.

87. The composition according to Claim 86, wherein the at least one supplementary thickener is chosen from cellulosic thickeners, guar gum derivatives, gums of microbial origin, and synthetic thickeners.

88. The composition according to claim 86, wherein the at least one supplementary thickener is present in an amount ranging from 0.01% to 10% by weight, relative to the total weight of the composition.

89. The composition according to claim 1, further comprising at least one reducing agent in an amount ranging from 0.05% to 1.5% by weight, relative to the total weight of the composition.

90. A ready-to-use composition for the oxidation dyeing of keratin fibers, comprising, in a medium suitable for dyeing,

- a) at least one oxidation dye;
- b) at least one fatty alcohol;
- c) at least one associative polymer;
- d) at least one compound chosen from fatty acid esters and metal oxides;

and

e) at least one oxidizing agent.

91. The composition according to claim 90, wherein the at least one oxidizing agent is chosen from hydrogen peroxide, urea peroxide, alkali metal bromides, ferricyanides, persalts, and redox enzymes together where appropriate with the respective donor or co-factor thereof.

92. The composition according to claim 91, wherein the at least one oxidizing agent is hydrogen peroxide.

93. The composition according to claim 92, wherein the at least one oxidizing agent is an aqueous hydrogen peroxide solution whose titre ranges from 1 to 40 volumes.

94. The composition according to claim 93, wherein the pH of the aqueous H₂O₂ solution ranges from 4 to 11.